# THE RUBBER AGE AND TIRE NEWS

DEC. 25, 1919 VOL. VI. NO. 6

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THE RUBBER AGE AND TIRE NEWS

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H. B. SEYMOUR, BUSINESS MANAGER

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# Investigations in Agricultural Chemistry*

By B. J. Eaton

The principal chemical work carried out during 1918 has been a continuation of the researches on the variability of rubber. In this connection nearly 700 specimens of rubber were investigated, which included nearly 600 experimental samples prepared at the Department for research purposes.

The results obtained confirmed previous results and theories based on these results.

The principal investigations under this heading were in connection with (1) the effect of alum salts on rubber, (2) the effect of oils on rubber, (3) the effect of storage on raw rubber.

### *Effects of Alum Salts*

Previous work carried out by the writer at the Department had shown that commercial alum (potash alum), when used as a coagulant, has a deleterious effect on the rubber produced. It might be stated here that alum has been used to a considerable extent during the last three to four years, almost entirely by small holders, chiefly Malay and Chinese, for the coagulation of *Hevea* latex. This has arisen chiefly owing to the high cost of acetic acid, and probably also on account of the difficulties experienced by small holders in obtaining acetic acid, especially in cases where their holdings were situated some distance from the market.

Owing to complaints received from buyers, especially for the American rubber market, the writer's opinion was invited and a special note contributed to the *Tin and Rubber Journal* on the subject, drawing attention to the effect of alum on rubber, both in respect of its effect in retarding the rate of vulcanization and thus introducing another variable factor, and also its effect on the tensile properties of the vulcanized rubber.

Further investigations were carried out with specially pure potash alum and also with other aluminium salts, e.g., soda alum, ammonia alum and aluminium sulphate. These salts were found to have similar effects and must therefore be discouraged as coagulants.

These remarks apply also to proprietary or patent coagulants containing alum, of which there is or has been at least one on the market here.

At the request of the Advisory Committee of the Agricultural Department, a leaflet or pamphlet on the subject was prepared by the writer and translated into Malay, Chinese and Tamil and distributed. (More recently, a clause has been introduced in the Rubber Dealers' Enactment (Enactment No. 5 of 1919) by means of which the Government has power to make rules prohibiting the use of any treatment or method of preparation of rubber found to be undesirable.)

The writer would also like to issue again a note of warning against the use of sulphuric acid as a coagulant, including such substances as sodium bisulphate (nitre cake), which could be purchased cheaply during the war, owing to the fact that it was a by-product. Sodium bisulphate as a coagulant is essentially sulphuric acid, and would almost certainly have similar effects as a coagulant.

A warning should be issued particularly against the treatment of sheet rubber by soaking in solutions of sulphuric acid after machining.

The writer has recently examined some excellent samples of pale unsmoked sheet rubber, believed to be prepared by such treatment. Unfortunately, the excellent appearance does not infer, in this case, excellent quality but very inferior quality. The results of tests on this rubber made by the writer have been confirmed also by a manufacturer's report from England.

### *Effect of Other Chemicals*

Owing to the fact that certain chemicals, when used as coagulants, were found to retard the rate of vulcanization of the rubber, further experiments were carried out, in which such chemicals were added directly to the dry prepared rubber, on the mixing machine, immediately before vulcanization, in order to ascertain whether these substances behaved as negative catalysts (retarding agents) or whether they behaved as bactericidal agents. The results of these experiments showed that the substances experimented with, which included molybdic acid, phospho-tungstic acid, boric acid and tannic acid, directly retard the rate of vulcanization, when added to rubber mixings. It is intended to extend this investigation to many other substances.

### *Effect of Oils on Rubber*

The action of various oils and greases on raw rubber was investigated, from the point of view of the vulcanized product, in connection with the occasional contamination of raw rubber with oil from bearings of rubber machines, due usually to carelessness on the part of the coolie. It should be pointed out, however, that in the experiments carried out, the oil or grease was added to the rubber just before incorporating with sulphur on the milling machine, and that the vulcanization was carried out within a few days subsequent to the addition, so that the oil would not have had any prolonged action on the rubber.

One interesting feature emerged from this investigation. It was found that the grease used in the bearings of the machines in our own factory, when added to the rubber, accelerated the rate of cure. On testing the grease it was found to be markedly alkaline and is probably a "recovered" grease. The acceleration in rate of cure is therefore probably due to the alkali present. In view of the deleterious action of alkalis on raw rubber, previously shown in this laboratory, this constitutes another reason why contamination of the rubber with grease from bearings should be avoided.

### *Effect of Storage on Raw Rubber*

During the last six months of the year, especially in view of the shipping crisis and difficulty of export of raw rubber, an investigation was commenced on numerous samples stored in the laboratory under normal conditions, i.e., without any special precautions, except against exposure to direct sunlight, or exposure to exceptional dampness causing mildewing, etc. This work is still being continued and definite conclusions

* From Agricultural Bulletin of the Federated Malay States, Vol. VII, No. 4.

have not been reached, since the results obtained on the stored rubbers have not yet been compared thoroughly with those obtained on the samples when only a few weeks old. The opinion was expressed by the writer that, as far as intrinsic quality was concerned, the deterioration of raw rubber stored under suitable conditions in this country, for a period of six months to one year or possibly longer, is small or possibly negligible. There is no doubt, however, that the market value would be affected from the point of view of appearance, since pale crêpe darkens considerably on keeping and, unless care is taken to keep the rubber very dry and well ventilated, spot disease will attack pale crêpes and mildews will attack smoked sheet.

More recent experiments on samples stored for two to three years no longer appear to show deterioration in quality, especially in the case of crêpe, and this is believed to be due to surface oxidation and hardening, which would be excessive in crêpe, owing to the large amount of surface per unit weight. The rate of vulcanization also appears to be affected and to be generally slower. A number of four-year-old samples of "slab" rubber, however, left in slab form, have been tested recently and found to be of excellent quality and similar in rate of vulcanization to samples creped and tested about a fortnight after coagulation.

There is little doubt in my opinion that the best method of storing dry raw rubber is to compress it into solid blocks or masses, since the deterioration which does take place is due to surface exposure. Rubber containing moisture, such as "slab" rubber, would not be affected like dry rubber.

Further work on the sulphur content and changes during the aging of vulcanized rubber was carried out by Mr. Day at my request. A full account of the researches on rubber up to about April, 1918, is contained in Bulletin No. 27, "The Preparation and Vulcanization of Plantation Para Rubber," which was published by the Department and ready for issue towards the end of the year.

### *Soil Investigations*

Routine examinations of soils were continued and a number of specially bad pockets or areas of soils on different estates were investigated. In some cases, an ordinary chemical examination revealed nothing to account for the poor quality of such areas, but generally the quality could be attributed to extreme physical or mechanical characteristics of the soil, i.e., the soils were either very heavy clays so situated that drainage was difficult, or light sandy soils, unable to retain moisture, especially owing to lack of organic matter.

A commencement is being made on the biological investigation of soils, which, it is firmly believed, will yield the most fruitful and useful results in connection with tropical soils, especially in a damp climate such as Malaya.

During the year, 83 soils were examined; these included three padi soils and nine miscellaneous samples, the remainder being rubber soils. The samples were from the following States: Perak, 9; Selangor, 45; Negri Sembilan, 10; Johore, 5.

A large tract of land near Jarantut (Pahang) was also inspected and the soil investigated in connection with the selection of sites for large scale experimental farms.

An investigation of the ash and potash content of the water hyacinth was carried out by Mr. F. W. F. Day, Assistant Agricultural Chemist, and the results published in the *Agricultural Bulletin*. The results confirmed and amplified those obtained at the Imperial Department of Agriculture at Pusa, India.

An investigation on the oil content and keeping qualities of Para rubber seed oil was also completed by Mr. F. W. F. Day early in the year and the results published in the *Agricultural Bulletin*. This report has attracted considerable attention and demands for this issue of the bulletin have been large. A revised reprint, embodying the report received on the oil from England, is being prepared.

Much time has been spent in the consideration and working out of schemes for the erection of co-operative cocoanut oil mills in the Federated Malay States. Articles in the *Agricultural Bulletin* published during the present year (1919) refer particularly to this problem.

There is little doubt that a properly worked scheme on a large scale would be of great benefit to the cocoanut industry of the country.

# Book Reviews

"Industrial Representation Plan of the Factory of the Goodyear Tire and Rubber Company." Published by the Goodyear Tire and Rubber Company, Akron, Ohio.

This booklet treats exhaustively of the Goodyear policy of giving representation to employes on subjects which affect their interests. The 84 pages of the book consist of a description of the election of members to the Council of Industrial Relations; notes of the talk given by P. W. Litchfield, vice-president and factory manager of the firm, at the first meeting of the Council of Industrial Relations as well as reports of subsequent meetings. The industrial representation plan is discussed at length as is the election of members to the Goodyear Industrial Assembly. The book concludes with a description of the personnel of the Assembly. A likeness of each senator and representative appears accompanied by a paragraph giving information regarding his age, occupation in the firm and personal characteristics. The book is handsomely bound in dark brown paper with a design in gold upon the cover.

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Flexible Metal Hose Tubing and Accessories. Published by the Breeze Manufacturing Co., Newark, N. J.

The Breeze Manufacturing Co., of Newark, N. J., have just issued an unsually interesting trade thirty-six page book dealing in detail with the subject of flexible metal hose. There is no catalog in this country on the subject it is claimed and only one issued in foreign country years ago, which contained nothing but figures and prices.

This descriptive matter covers metal hose in detail for every type and method of winding. It shows how it is applied and why, and what number of trades or industries use it. Being illustrated fully, the descriptive matter is readily understood. It is dedicated to the engineers, mechanical superintendents, factory managers, purchasing agents and students of mechanics, as it presents technical information and furnishes the solution of many puzzling engineering problems.

Flexible metal hose in itself is very little understood from the standpoint of application. There are so many varied characters of winding that the Breeze Manufacturing Co. takes the stand the purchaser should be informed as fully as possible before purchasing as to what each type will accomplish.

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Facts—(Facts About Pneumatic Truck Tires); booklet 48 pages, 8½ x 11 inches. Published by the United States Tire Company.

The history of the pneumatic truck tire and an exposition of facts connected with the use of "Nobby Cords" under varying conditions make interesting reading. The booklet contains the experiences of truck owners with "Nobby Cords" and shows average conditions encountered by motor trucks. The paper, illustrations, and general appearance of the booklet are exceptional.

# Removing Solvents From Dipped Rubber Goods

By D. Repony

The fact that a collodial solution such as rubber cement has the ability to prevent evaporation of the solvent is regarded as a troublesome proposition, especially when it is desired that the solvent evaporate rapidly.

The fact that the solvent is difficult to volatilize from rubber cement is evidently due to the fact that as soon as the solvent evaporates from the surface, the latter forms a protecting coat for the cement below, and since the evaporation can only take place from the surface, any subsequent evaporation is effected very slowly.

Of course, the nature of the solvent is a decisive factor in rapid evaporation. Ether, chloroform, or carbon disulphide are the most rapidly drying rubber solvents, but they are not adaptable for commercial use because the price is prohibitive and because they have an anæsthetic effect if they are inhaled. The question remains of how to remove the commercially used solvents such as benzol or gasoline in the most effective manner.

It is evident that it is more difficult to volatilize the solvent from dipped articles such as nipples, rubber gloves, etc., where the coating is heavier than it is where an ordinary coat of rubber cement is applied with the brush. The cost of the solvent in manufacturing dipped goods is also a considerable item of expense. The following new method proposed treats the subject from both points of view.

### *Alcohol and Acetone Are Precipitants*

As we know, alcohol or acetone, etc., contrary to the previously mentioned rubber solvents, are precipitant, that is, when sufficient quantities of alcohol are added to the rubber cement, the latter extracts the benzol from the cement, and the rubber becomes precipitated. Advantage is taken of this principle in dipped goods to separate the solvent from the rubber, instead of the slow process of volatilization by air, and in this manner an important advantage is gained in that practically the entire solvent can be recovered. However, as simple and ideal as this proposition may appear at first sight, it requires detailed study in order to employ it as a practical scheme.

In the first place, in order to obtain satisfactory results, a rubber solvent must be used which can be perfectly mixed with the precipitant; and, on the other hand, because a commercial rubber solvent must be selected the latter must have properties free of any objection. It has been found by experimentation that pure benzol is the most suitable solvent for this purpose, and alcohol is the best precipitant. Naphtha is not suitable for the reason that it cannot be perfectly mixed with any commercially known precipitant. The expression "perfectly mixed" means that the rubber solvent can be mixed with the precipitant in any proportion. For example, benzol and alcohol can be mixed in any proportion, and each will remain in solution. When gasoline is mixed with alcohol, the latter will absorb only certain proportions of the former, and the excess becomes separated. Naturally, the effectiveness of the precipitant is in direct proportion to the affinity which the two liquids possess toward each other.

Thus assuming that we have heavy rubber cement, using benzol as a solvent, the cores (of the shape of baby nipple) are dipped in the cement and are afterward dipped in the acetone, the latter absorbs the benzol instantly and leaves a rubber film. It has been observed that after the acetone becomes charged with about 40 per cent benzol, the effectiveness of the alcohol as an absorbent is but slight because alcohol containing forty per cent of benzol is a rubber solvent instead of a precipitant. The alcohol remains an effective precipitant as long as it contains not more than about eight to 10 per cent of the benzol, so in order to work effectively, a battery of at least three serial dippings must be at hand. In other words, the goods should be dipped in the first pan, which can be charged with about twenty per cent of benzol, and then in the next, which can be charged with about twelve per cent of benzol; and then in the third, which should not contain more than five per cent. If it is desired to again dip the goods in rubber cement, which is necessary when the article is to be of a heavier wall than the one which can be produced by single dipping, then it must be again dipped in benzol to remove the alcohol. The alcohol absorbs the benzol almost instantly, but the rubber will reabsorb the benzol very slowly, and therefore it is better to first remove the alcohol from the rubber surface before it is dipped a second time. Naturally, the second or any subsequent dipping in rubber cement is dipped in the alcohol for the purpose of removing the benzol from the cement.

### *How to Save the Alcohol*

After the final dipping, the alcohol adhering to the surface can be saved by dipping it in succession into two or three pans of water, charging the water with the alcohol in suitable proportions, similar to the one of benzol in alcohol, although the saturation should be much higher in order to economically separate the alcohol from the water.

The absorption of one solvent by the other has been described in detail, and it will be found that by this method the removal of the benzol from the rubber cement has a great advantage over the old-fashioned drying by air suction.

The next difficult proposition is how to separate the rubber solvent from the precipitant so as to be able to use it over again. As this method of absorption depends upon the affinity which one solvent possesses for the other, it is natural to suppose that the simplest method would be to add to the two mixed solvents some other liquid which has greater affinity for either one. The boiling point of the added liquid should be very high, so that the final separation can be effected by direct distillation.

### *Difficulty of Separation*

For example, having a mixture of eighty per cent alcohol and twenty per cent benzol, and adding to it some paraffin oil (since paraffin oil is not mixable with the alcohol, but is so with the benzol), the benzol will unite with the oil and separate on account of the difference in specific gravity, leaving the alcohol free from benzol. Then to separate the oil from the benzol, it is necessary to subject the benzol-oil mixture to distillation; and since the boiling point of the benzol is 80 deg. C., and the boiling point of the paraffin oil is over 300 deg. C., the benzol should distill over, leaving the oil. However, this theoretical supposition does not work satisfactorily in practice, although by this means the largest portion separates in the expected way, yet some of the benzol and oil remain with the alcohol. Some alcohol also remains with the benzol and oil mixture, and of course the imperfect separation is due to the fact that the affinity of benzol for alcohol cannot be completely offset by the stronger affinity of oil for benzol, and consequently, since some benzol is held by the alcohol, also some oil is held by the benzol, this method of separation is practically useless.

Trying to effect the separation by the reverse process, that is, by adding glycerine to the mixture of benzol-alcohol, the glycerine combines with the alcohol and sets the benzol free. It has been proven that the separated alcohol glycerine mixture contains considerable benzol, and that the benzol contains alcohol and glycerine.

(*Continued on next page*)

# Proposed Tax on Gross Sales

Speaking before the meeting of the American Association for the Advancement of Science, recently held in St. Louis, Mo., Morris F. Frey, assistant-treasurer of the Guaranty Trust Company of New York, and tax consultant of that company, indicated the fiscal possibilities of a Federal tax on gross sales as a substitute for the present excess profits tax, which he said threatened the industries of the country with irreparable injury.

"Undoubtedly," said Mr. Frey, "one of the strongest arguments in favor of a sales tax lies in the desire and need of relieving the country of one of the most unjust, unsound, and dangerous taxes which has ever been imposed upon our industries, namely, the excess profits tax. The excess profits tax, though probably justifiable as a means of raising revenue for the prosecution of the war, is both unscientific in principle and economically unsound. Although this tax is in the form of a direct tax on profits, it is, in effect, a most unsatisfactory commodity tax. A manufacturer, merchant, or other business concern subject to the tax, in most instances, estimates in advance the amount which he is compelled to add to the selling price of the commodity in order to pass the same on to the ultimate consumer, so as to protect himself against the heavy imposition.

"Because of the uncertainty of the determination of the tax, owing to the intricacies and complexities of the law, a business concern is apt to overestimate, rather than underestimate, its liability. In doing this, it often becomes an unintentional profiteer in safeguarding itself from an undue usurpation of its earnings. Thus, prices are increased to the consumer by amounts more than sufficient to cover the tax. If we abolish the excess profits tax, we undoubtedly will have eliminated a potent factor in the existing high cost of living.

"From the foregoing it would seem that, as a matter of principle, consumption taxes are recognized as proper sources of Federal revenue, and existing taxes must be superseded by an equally productive system which does not so seriously threaten the prosperity and even the existence of our industries. In other words, what is needed most at the present time is a tax law which may be productive enough to raise a large amount of revenue and elastic enough to meet changing conditions, and, at the same time, not an impediment to increased production, and simple and economical in administration. It is generally admitted that a gross sales tax at a low rate will produce a large amount of revenue depending upon the scope of its application, it having been estimated that a tax on general sales of 1 per cent will produce three and a half billions, and a similar tax on retail sales, one and a quarter billions."

Summing up the possibilities of the gross sales tax, Mr. Frey said that it had the following advantages:

"1. Either a cumulative tax or a tax limited to retail sales will be productive and flexible and probably offers the only available substitute for the excess profits tax;

"2. The tax would be equitably distributed over a large mass of people and would be so light that it would not impose an undue burden;

"3. As a substitute for the excess profits tax, it would impose a definite, certain, consumption tax, easily ascertainable, in place of an indefinite, undeterminable tax which is now passed on to the consumer on a good deal higher basis than the actual imposition;

"4. The tax is so low that in practice, any attempt to abuse or defraud the consumer should be taken care of by competition.

"Universality of incidence is marked advantage of a gross sales tax," continued the speaker. "A consumption tax of this character will reach the great mass of farmers and wage earners into whose hands the greater portion of the natural income goes. These classes apparently are sharing fully in whatever prosperity the war has brought, but cannot be reached effectively through income taxes. Thus, a large number of people will contribute to the expense of the Government a large amount in the aggregate, in sums depending upon the amount of their expenditures. The man who lives carefully and conservatively would pay less than one with the same income who lives recklessly and extravagantly. Meanwhile we may note, for example, in passing, that a 1 per cent tax on retail sales would probably cost a man with an income of $2,000, who spends all of it, less than $20, and this amount would be so distributed and paid throughout the year in his purchases that he would not realize he was paying a tax."

Mr. Frey proposed that the gross sales tax be placed cumulatively upon all commercial turnovers from the original purchaser to the final sale by the retailer to the consumer. Replying to the objection that this would be pyramiding, he said that it had been estimated that a cumulative tax on gross sales would add less than one-half of one cent to the cost of a pound of beef selling at retail at about 40 cents.

"Let us consider for a moment," he said, "the real effect of a sales tax. A manufacturer of toys, whose gross receipts from sales are $100,000 per year, would pay a tax of $1,000. This amount would be passed on to the consumer in a way that would be the easiest and most practicable by adding to the cost of the commodity sold or manufactured—not necessarily by adding a fixed amount to each sale. For instance, on some products, the manufacturer may be able to stand the amount of tax because of the large margin of profit, whereas on others his margin may be very small, and an increase in price to take care of the additional tax could be made. His purpose would be to recoup the amount of the tax by adding to the price of the articles to which the increase could be applied to the best advantage. Competition could be relied upon to prevent abuse and profiteering, and the imposition of unreasonable charges on the consumer under the guise of consumption taxes. Further than that, the public will be awake to the amount which the merchant or manufacturer is required to pay to the Government, which is not the case under the present excess profits tax law."

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## Removing Solvents from Dipped Rubber Goods

(*Continued from previous page*)

A large number of different ingredients have been tried to effect complete mechanical separation, but none will work satisfactorily, and it has been found that the only complete separation of the benzol alcohol mixture can be effected by fractional distillation.

If the fractional distilling apparatus is connected with the dipping pans in a suitable way, the entire outfit takes care of itself automatically. The freed alcohol should flow from the still in the third pan and overflow from one into the other, so that from the last pan, saturated with the greatest amount of benzol, the alcohol flows directly back into the fractional still by the help of a pump. The recovered benzol can be used over and over again to make the rubber cement.

# Stretching Canvas Plies on Tire Covers

This invention relates to machines for making pneumatic tire covers or casings (generally known as case-making machines), the chief object being to provide an improved ply rolling head for correctly laying or stretching the canvas plies of the cover of casing on the core.

It is well known that the canvas plies made up from bias cut strips require to be stretched or deformed in order to correctly form or shape the same for placing on the core. The stretching of the canvas is in a circumferential direction and the stretching inside the neutral axis is in a radial direction inwards.

It is necessary in order to lay the plies correctly on the core that the canvas within the neutral axis should while being laid on be displaced or stretched inwardly towards the centre of the core. Heretofore a common arrangement of carrying out this operation has been by means of reciprocating fingers which move in parallel straight lines and have the same length of stroke. In some instances a number of the fingers move in lines which are not parallel to the lines of movement of the other fingers.

It is found that with the reciprocating movement of the fingers and the circumferential movement of the core, there is a tendency for the canvas plies to be creased or puckered at the inner edges near the beads, thus causing defective tires due to the fact that the fingers often used to lag behind or overtake the coincident circumferential movement of the core adjacent to such fingers.

According to this invention the fingers during the ply laying strokes are caused to move in such paths as to compensate for the circumferential movement of the core, so that the resultant inwards stroke of the fingers relatively to the canvas over which they run on the core caused a stretching or displacement of the canvas in an inward radial direction within the neutral axis of the canvas. For this purpose the fingers may be mounted on a bracket or member which is adapted to be oscillated on a suitably disposed pivot, the fingers having rollers at their ends so arranged relatively to the point of oscillation of the head and the axis of the core that the rollers move in curved paths, which taking into consideration the circumferential movement of the core produces an inward stroke or movement over the canvas on the core which displaces or stretches the canvas in an inward radial direction within the neutral axis. Means may be provided by which the length of stroke or movement of the rollers may be varied so that after the beads have been applied to the edges of the inner canvas plies the stroke can be reduced to prevent the rollers from coming into contact with the canvas overlaying the bead.

The fingers with their rollers may be readily removed and substituted by other fingers and rollers to enable various sized and sections of tire covers to be dealt with without removing the head; means may also be provided to enable the fingers to exert uniform or equal pressure on both sides of the core the oscillating movement of the head may be effected in such manner as to ensure smooth and noiseless working so as to avoid the necessity for undue use of lubricating oil which is detrimental to the rubbered surfaces on the core. A is the main supporting member or bracket of the head; B is a portion of the core which is mounted on a suitable shaft or support so as to rotate in the direction of the arrows. B1 is the part of the core on which the inner canvas plies of the casing are placed.

As shown in Fig. 1, the bracket A is straight at its lower part and curved at its upper part, which latter is of somewhat forked or bifurcated form to provide two lugs or bearings A1, which extend one on each side of the core, and are mounted on pins A2 supported on the frame of the machine, the pins A2 constituting the point about which the bracket A is oscillated by appropriate means. The straight part of the bracket A is disposed a short distance from the core, and on each side of the straight part a spindle C is detachably mounted in lugs or ears A3 A3 on the bracket in any appropriate manner.

These spindles C each carry a set of fingers D, the individual fingers being provided at their rear ends with eyes or perforated lugs D1 to enable them to be placed on or removed from the said spindles, and to be angularly movable on them. The fingers D are curved towards their forward ends, which

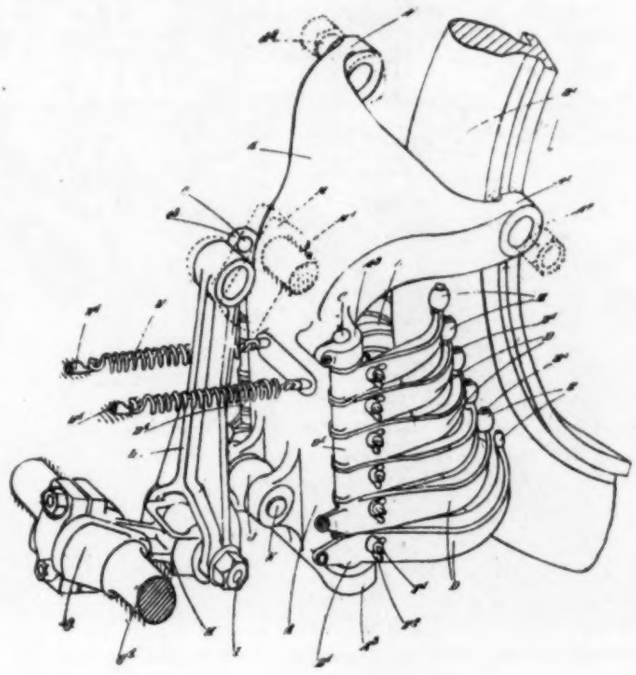


FIGURE 1

latter lie adjacent to each side of the core, as shown in Fig. 3. and are provided with rollers E, which are rotatably mounted on pins E1 E1 secured to the fingers D. The rollers E lie in contact with and on each side of the core, and bear against the same with equal pressure owing to the influence of springs F (see Fig. 3) connected to and between the correspondent pairs of fingers in the two sets; the springs are adjustable by means of screws F1 and wing nuts F2 so that the pressure of any pair of rollers E on the core can be varied by altering the tension of the spring pertaining to them. The fingers D gradually increase in length from the upper one to the lower one as shown in Fig. 2, and the pins E1 on which the rollers E of each set are mounted are disposed in different angular positions to enable the rollers to effect the desired movement or stroke relatively to the rotating core when the head is oscillated. Any or all of the various fingers D can be readily removed by partially or wholly withdrawing the spindle C, and, if desired, substituting other fingers of different shapes and lengths having suitably arranged rollers to suit different sizes or sections of tire casings so that it is not necessary to change the complete head.

In the example shown, the oscillation of the bracket carrying the fingers D may be effected by a rotary crank G on a

suitably driven shaft G1, the crank being connected to a rod H which is pivotally connected at I to a short link J pivotally connected at K to the lower part of the bracket. At the point of connection I is pivotally connected to the lower end of the suspension link L, whose upper end is pivotally connected to

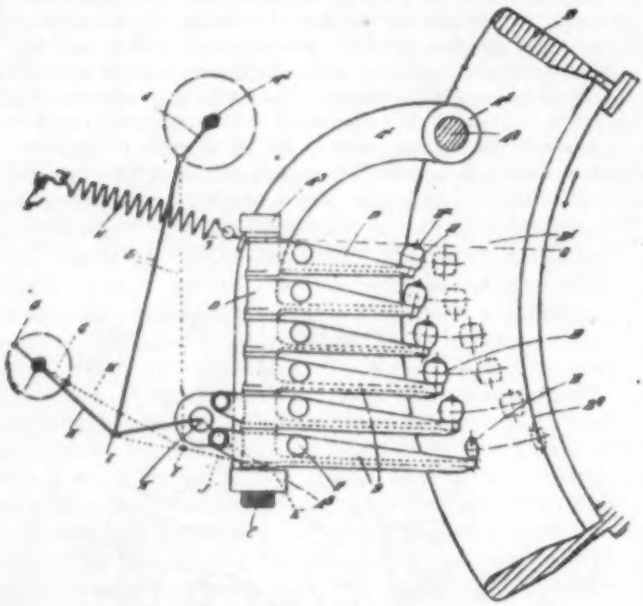


FIGURE 2

a crank M fixed to a pin M1, which can be adjusted and set in any fixed position by any appropriate means for the purpose of varying the position of the point of connection I, and thus enabling the extent of oscillation of the head and the length of the stroke of the finger rollers E to be varied as desired. Fig. 2 shows the crank M and the point of connection I in such a position that the rotation of the crank shaft G1 will effect a long stroke of the rollers so that the lowermost roller of each set will extend to the respective edge of the inner canvas on the core, the dotted lines showing the position of the driving means and the rollers when the latter are at the inward extremity of their strokes. Two tension springs N1

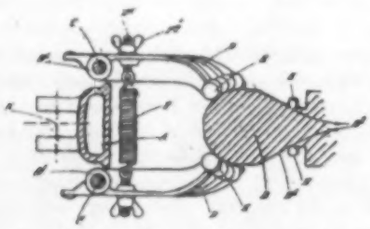


FIGURE 3

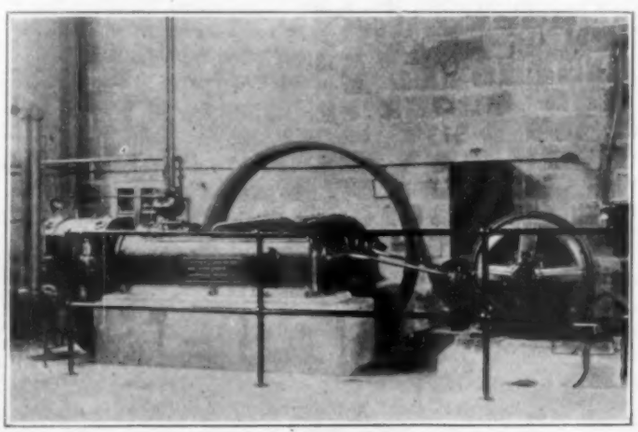
secured to the machine frame, maintain the connecting rod H, and the link J, in a compressed or collapsed condition, so that the extending movement of the rod and link to produce the inward movement or stroke of the bracket is effected against the action of the springs N N, and by this arrangement the bracket can be oscillated at a high speed without setting up backlash, thus ensuring smooth running and noiseless working and avoiding the undue use of lubricating oil, which it is not wise to employ too near to the rubbered surfaces on the core. Where possible, ball, roller or other oil-less bearings are employed. The springs N N may be adjusted if desired.

The construction and arrangement of the oscillating head and the driving means enables the oscillatory movement imparted to the head to cause each finger to move in a curve or arcuate path, the radius of each curved path being struck from the point of oscillation of the bracket, which point is suitably determined and may be situated within the limit of the outer circumference of the core. Owing to the arrangements of the various parts, the resultant path of movement or stroke of each roller corresponds very closely to the theoretical movement required to compensate for the amount of circumferential movement of the rotary core during the inward stroke of the several rollers, thus giving a radial stretch to or displacement of the canvas inwardly within the neutral axis thereof during the circumferential movement of the core.

The upper rollers, which during the inward stroke do not extend within the neutral axis of the canvas, are ply layers only; the lower rollers, which during the stroke extend within the neutral axis, effect the radial stretching or displacement of the canvas as required within the said axis. The circumferential stretching of the canvas outside the neutral axis may be effected by other means on the case making machine.—Patent No. 126,111 to The Dunlop Rubber Co., Ltd., 14, Regent Street, Westminster, London, to Colin Macbeth and to Charles Kendall Jones, both of the company's works at Aston Cross, Birmingham.

## Ingersoll-Rand Air Compressors

The Ingersoll-Rand Company, 11 Broadway, New York City, has designed and is putting upon the market a new air compressor known as the Class "ER-1," which is especially suited to the needs of the small shop, foundry and power plant. It is said that this compressor meets the varied conditions under which a machine of this type will be called upon to work in an economic and efficient manner. Among the features commending this type are the automatic splash lubrication, liberal bearing surfaces, complete and liberal water jacketing, enclosed construction with removable covers, heavy fly-wheels, heavy one-piece main frame, simple foundation and improved plate inlet and discharge valves. The machine is automatic in



INGERSOLL-RAND COMPRESSOR—IMPERIAL TYPE XB-2

action and requires little attention or care. It is compact and occupies but little floor space, and may be driven from line shaft, individual motor or gas engine, direct geared or by the "short belt drive."

# Advance in Tires Expected

*Shortage of Cotton and Corresponding Increase in Price of Tire Fabric Are Causes Given for Predicted Increases—Opinions Differ as to the Extent of the Advance*

Advances in the price of all sizes of automobile and truck tires is expected early this year by those in close touch with the rubber industry in Akron. The price advance is also expected to be extended to other lines of rubber goods in which cotton fabric is used.

It is pointed out that increased cost of cotton fabric which makes up nearly half the weight of the pneumatic tire is likely to force the rumored increases. The crude rubber quotations are fairly firm and an abundant supply is reported in storage or on its way to Akron factories. So any tire price advance must be charged up against King Cotton.

The situation with respect to cotton has been steadily going from bad to worse until at the present there is a decided shortage of this essential commodity. Demand for tire fabric has steadily increased while production of the raw material has been falling off. Bad weather, the ravages of the boll weevil and other causes have brought about the present condition. Sea Island cotton production has fallen to a minimum, while the new Arizona cotton has not increased to such an extent as to offset the decrease of the former. Production of Egyptian cotton has also decreased, and in addition to this the European nations have secured the greater part of the Egyptian crop for their own uses.

The larger tire companies have been able to secure ample material to carry them. This cotton is either already purchased or is secured by contracts of the sliding scale variety. A number of the smaller firms, however, have not been so successful and find themselves confronted by a situation which practically forces an increase in price of their products, inasmuch as they must purchase cotton at greatly increased prices.

Opinions differ as to the amount of the prospective increase. Some say it will be ten per cent, while others estimate it higher in order to place the price list on the same plane it was before the last reduction was made.

Among the many conflicting reports in circulation in Akron is one that all large companies may not be anxious to put a price advance into effect. Those who take this view point to the Goodyear Tire and Rubber Company, which has its own cotton plantations and cotton mills, its own crude rubber source and interests in other businesses which furnish materials entering into the cost of tire manufacture.

Officers and directors of the smaller tire manufacturing companies are looking to the larger corporations in the field with anxious and hopeful eyes. Price advances will put these concerns on a stronger financial footing and enable them to reach out for new business, it is said. The small companies are growing strong now by reason of the greatly increased demand for tires which the larger plants cannot handle. No matter how rapidly the leading manufacturers increase their production, the demand appears to grow faster.

When the point is reached where the production exceeds the demand, it is believed that a price war may result in an effort to limit the number of tire manufacturers. That point, however, appears far distant. Conservative estimates place the production of automobiles and trucks in the United States this year at 3,500,000. That means 14,000,000 tires must be made for initial equipment alone. On top of that there are something like 7,600,000 motor cars and trucks now in use, and they will demand at least 45,000,000 tires.

Statistical experts in Akron estimate that this country will eventually have more than 12,000,000 cars in operation, and that 72,000,000 tires will be needed to supply the domestic trade alone.

### Ajax Plant at Sandusky

Horace DeLisser, president of Ajax Rubber Company, Inc., has announced the consummation of negotiations whereby a new Ajax factory is to be erected in Sandusky, Ohio. Ninety acres of property have been secured by the company. The erection of the new plant will begin at once by the latter part of 1920, tire production will be well under way. At that time, too, existing Ajax plants will have reached a production peak never before attained in the company's history.

The announcement of the decision to build in Sandusky means a third factory for Ajax, the others being in Trenton, N. J., and in Racine, Wis. This expansion is in line with the expansion which the last few years have brought to the Ajax Rubber Company. It means, too, a geographical distribution of Ajax plants which will prove invaluable to Ajax dealers and to users of Ajax Tires.

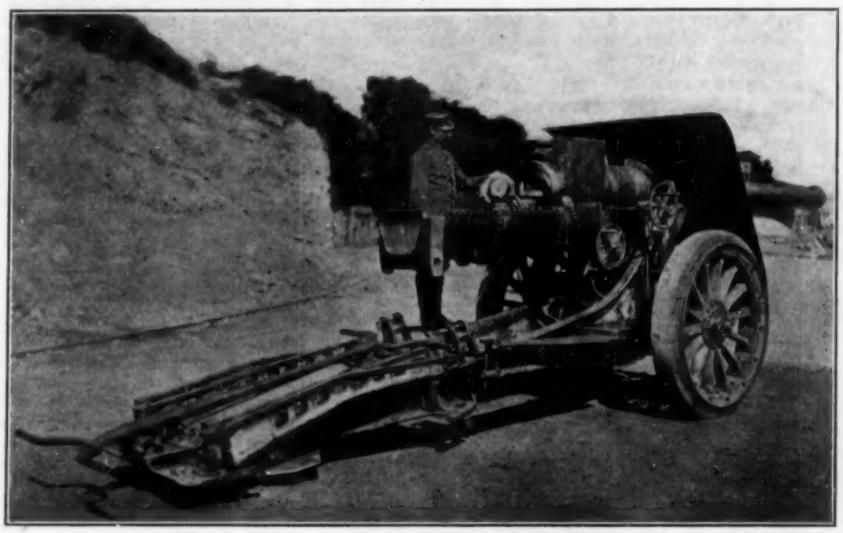
A housing plan for employes is being developed along with other welfare activities. Between 1,000 and 1,500 homes for Ajax workmen will be erected in Sandusky. Details for this housing plan which will be along similar lines of the housing project already under way at Racine, are now being worked out by the Ajax Industrial Welfare Department.

Discussing the plans for the new Ajax plant, Mr. DeLisser expressed his keen appreciation of the co-operation of the Sandusky Chamber of Commerce, which organization played an important part in bringing the project to a reality.

"We have obtained," Mr. DeLisser said, "a total of ninety acres of property in Sandusky. Work on the new plant will begin without delay. The factories will be located at a point contiguous to five rail lines—the main line of the N. Y. Central, the Lake Erie and Western, the B. & O., the Big Four, and the Pennsylvania. The property also fronts on Lake Erie and every facility for water transportation is at hand.

"The newly acquired Ajax property is on the famous Venice Road, the main artery connecting Cleveland and Toledo. It extends on both sides of this highway, as well as on both sides of the N. Y. Central tracks. We have certain riparian rights of which we expect eventually to take advantage.

"We feel that both the city of Sandusky and the Ajax Rubber Company are to be congratulated on the deal which has just been brought to a successful conclusion."



*Courtesy of Bergougnan Rubber Corp.*

HEAVY FIELD PIECE ON SOLID RUBBER TIRES

### Marion Tire Elects Officers

*(Special Akron Correspondence)*

Akron men now direct the Marion Tire and Rubber Company of Marion, Ohio, which was recently sold to Akron and New York capitalists. The following officers, all of Akron, have been elected: A. F. Ayers, president; Wilfred Cameron, vice-president; C. W. McLaughlin, secretary; and S. F. Zilliox, treasurer. W. A. Patterson was appointed factory manager. R. D. Beldon will continue as superintendent. It was announced, following the reorganization, that the plant will be enlarged immediately to meet the demand for increased production.

### Joel Jacobs Entertains

Joel Jacobs, treasurer of the Keystone Tire and Rubber Company, played the part of host on Saturday evening, Dec. 6, when two score of his friends and business associates partook of his hospitality at the Ritz Carlton, New York. In addition to the officers of the Keystone Tire and Rubber Company the following were present: N. J. Miller, Benjamin Lissberger, George W. Loft, Frank Steinhart, E. H. Broadwell and Julius Lichtenstein.

### How Solvay Helps Employees

For more than 30 years a profit sharing system has been in operation by the Solvay Process Company, manufacturers of alkali, with works at Syracuse, Detroit, and Hutchinson, Kans., writes Arthur M. Evans, in the Chicago Tribune. Participation is limited to employes of the grade of subforemen and higher up to the chief executive officers. Nine years ago it was supplemented by a bonus plan applying to all other employes, the premium being based upon length of service.

"The plan of participation in profits has worked with us successfully for a long time," writes M. H. Knapp, assistant to the president of the company. "It may be getting somewhat antiquated and need revision now, but the general principle we believe to be most satisfactory."

More than 5,000 men are employed by the Solvay Process Company at its several plants. Back in 1888, the company established a profit splitting plan, under which the participation is based on the amount of cash actually paid to the stockholders in the form of dividends, while the amount distributed to the individual varies as his salary.

The participants are divided into three classes. In the senior class are included only the chief executive officers and chief technical men; in the junior class are the chief technical assistants, the foremen of important departments, and the more important office men; in the first class are others down to junior clerks and subforemen. The first class receives the smallest unit in the profit sharing; the junior twice the first, and the senior three times the first. Each participant has a formal contract with the company which fixes the basis of the participation and the obligations of both parties. The board of directors elects the members of each participation class. The nature of the work performed, length of service, and employe's record are the qualifications which govern eligibility.

In addition to this, the company in 1910 put in a bonus plan covering employes not in the profit participation classes. This system is not strictly dependent upon the year's profits, the board of directors each year specifying the amount to be applied in this way. Distribution is made according to the following schedule:

For all employes who have been in continuous service—2 years, 2 per cent; 3 years, 2½ per cent; 4 years, 3 per cent; 5 years 3½ per cent etc., up to 10 or more years, 6 per cent.

"The plan," says the company, "puts a premium on length of service and has reduced the number of changes in the working force. The men, we believe, are benefited by it, because by receiving a lump sum once a year, they are more likely to have this sum available to make payments on obligations, to buy real estate or make investments than if it had been necessary for them to save an equal amount out of their weekly wages."

Hand in hand with the profit sharing and bonus distribution plan, the company since 1908 has operated a general pension plan to which men are admitted who have been incapacitated by reason of old age, sickness or accident after long service. The fund was originally set aside out of the company's profits, and since then it has been increased by making monthly payments into it of a certain number of cents per ton of product.

Also, as part of its educational and welfare work, the company conducts in its plants a modern half-time mechanic's school, into which a limited number of boys over 16 years are admitted. They are paid an hourly wage and are divided into two classes, each class being alternately two weeks in the school and two weeks in the works. For special cases a system has been established to lend money to students to enable them to obtain a college education.

### Dixie Awards Contract

L. C. Cadenhead, vice president and general manager of the Dixie Rubber Company, of Memphis, Tenn., a million dollar concern recently organized under the laws of Mississippi, announced recently that the company had awarded contracts to the Biltwell Tire & Rubber Company of Akron, Ohio, for casings and inner tubes with which to supply the trade of the new concern until such time as the plant to be built in Memphis can begin operations.

The Dixie Rubber Company is now planning the erection of a plant in this city for the manufacture of casings and inner tubes and other rubber goods. The manufactory is to cost approximately $1,000,000, and the first unit of the plant will employ about 500 people. The contracts awarded recently to the Akron concern were made in order that the trade of the new company can be supplied during the time the plant is under construction. Mr. Cadenhead said that he expects to have the factory in Memphis in operation during the early summer of next year.

### Ashland Seeks Foreign Business

Geoge W. Rohn, of the export brokerage firm of A. Metzner, Cleveland, Ohio, will sail from New York, Jan. 3, 1920, as a representative of the Ashland Tire and Rubber Company; and will close with foreign jobbers for the distribution of Ashland tires and accessories in the following countries where the A. Metzner firm has good connections; France, Holland, Belgium, Switzerland, Germany, Jugo-Slavia, Czecho-Slavia, Roumania and England.

The Ashland Tire and Rubber Company has made this selling connection with A. Metzner more on the strength of the reputation of the men at the head of this new company, than anything else.

### Rennick Assistant Treasurer of Mason

W. J. Rennick, who has been credit manager for the Mason Tire and Rubber Company since January 1, 1919, was recently elected to the position of assistant-treasurer. The new position will be in connection with his present duties as credit manager. Mr. Rennick has been directly connected with the tire business for the past eight years and spent the four years previous to his present connection with the Miller Rubber Company as assistant credit manager.

### Physical Training for Goodyear Executives

The value of systematic physical training for executives is being recognized by industrial concerns throughout the country. It is well known that exercise for those whose work does not normally provide it makes for efficiency and little loss of time through illness. The importance of good physical condition is understood at The Goodyear Tire and Rubber Company, Akron, Ohio, special classes being held three times a week. Executives endorse the plan eagerly, realizing the benefits obtained.

### Menacing Bills Before Congress

Considerable agitation is being manifested by the manufacturers of the country over two bills which are at present pending in Congress and which are full of menace to the industry of the country at large.

The first of these is known as S.2904 and was introduced by Senator Jones, of Washington. It is at present before the Senate and makes the following provision:

"That the manufacturer of any article produced after the passage of this Act, and intended to be put in interstate commerce, shall plainly mark upon or attach to such article the cost thereof.

"Sec. 2. That every retailer of any manufactured article carried in interstate commerce after the passage of this Act shall put upon or attach to such article before sold to his customers in plain figures the cost of such article to him."

The second bill is in the House of Representatives and was introduced by Representative Siegel. It is known as H. R. 8315 and provides for the following:

"That every person in the United States before transacting business either as manufacturer, wholesaler or retailer shall be required to obtain from the collector of the district wherein he transacts business a license or permit to transact business within such internal revenue district for a period of one year.

"Sec. 3. That any person now or hereafter engaged in business in the United States to whom a permit or license shall have been issued who shall expose or offer for sale or cause to be exposed or offered for sale to the public any article of goods, wares, or merchandise without having plainly stamped or printed thereon, or attached thereto a card showing the true, actual cost price thereof, such person shall be guilty of profiteering, and shall be punished as hereinafter provided."

These measures have gained considerable headway due to the present agitation to reduce the high cost of living. It would be advisable for dealers to write to their Senators and Representatives protesting against the bills which would undoubtedly result in considerable damage to the industry as a whole.

### Corona Cord Builds Plant

The Corona Cord Tire Company is the name of a firm which will shortly engage in the manufacture of tires at East Butler, Pa. According to the plans of the firm production will begin shortly ofter the first of the year. The company plans to begin with a production of 1,000 or more tires daily, in addition to other lines of manufacture that will be engaged in. The principal business will be to make cord tires, and the men employed in the plant will approximate 1,100.

The plant site embraces 20 acres, and the buildings, which are being added to by a new modern structure, have a total of 200,000 square feet of floor space. A prospectus of the company's business states that the real estate and buildings could not under present conditions be duplicated for $500,000.

Machinery is being installed in the buildings as quickly as it arrives, and will be put in operation under management of H. B. Callahan, A. C. Fisher, C. S. Parks, S. C. Moore and F. H. Groves, all of whom are interested in the company and experienced in the auto tire business.

Officers and directors of the Corona Cord Tire company are T. W. Phillips, Jr., president; H. B. Callahan, vice president; Charles H. Miller, secretary and treasurer; J. V. Ritts, B. D. Phillips, A. C. Fisher and Elias Ritts, directors.

# News of the Rubber Metropolis

*Record Year for General Tire—Owen to Increase Capital Stock—Portage to Build New Unit—Well-Known Surgeon with Goodyear—Firestone Business for the Year*

### Record Year for General Tire

*(Special Akron Correspondence)*

Sales of the General Tire and Rubber Company during the year ended December 1, 1919, approximated $5,000,000, a gain of 95 per cent over the preceding twelve months, according to the financial statement recently issued by the company. Net earnings were around the $500,000 mark, or approximately 100 per cent on the outstanding common stock. Directors have placed the common on a sixteen per cent basis, declaring a quarterly dividend of four per cent at their December meeting.

Officers look for a 100 per cent increase in sales during the present year. The plant is now working to capacity and additions to increase production are not unlikely in the near future.

At the annual meeting M. O'Neil was re-elected president. Others returned to office include W. O'Neil, vice president; W. E. Fouse, secretary and assistant treasurer; Charles Herbrich, treasurer; and W. J. Cahill, assistant secretary. Directors re-elected include G. F. Burkhardt, J. A. Diebolt, W. L. Beckley, T. F. O'Neil, M. O'Neil, W. O'Neil and W. E. Fouse.

### Owen to Increase Capital Stock

*(Special Akron Correspondence)*

Stockholders of the Owen Tire and Rubber Company of Cleveland have ratified an increase in capital stock from $1,700,000 to $3,000,000. Preferred was increased from $850,000 to $1,750,000 and common from $850,000 to $1,250,000. The new stock is being offered in blocks, the preferred at par combined with not less than twenty-five per cent of common.

The purpose of the increase, according to a letter received by Akron stockholders, is to erect a two-story and basement building 100 by 70 feet in which will be installed six vulcanizers giving the plant a capacity of 1,500 tires a day. The building will not be started before spring.

### India Rubber Declares Dividend

*(Special Akron Correspondence)*

Directors of the India Rubber Company have declared a forty per cent stock dividend, as a part of a financial program which includes the increasing of the capital stock from $1,500,000 to $5,000,000. One half the new stock issue will be common and the other preferred.

Present stockholders can subscribe to shares in the new issue at par. India common now is bringing offers of 260 with little or none to be had.

Officers of the company recently stated that the production has been doubled in the last year and that new buildings must be erected and the old ones enlarged.

### Henderson to Move to Columbus

*(Special Akron Correspondence)*

The Henderson Tire and Rubber Company which has been operating the Bucyrus Rubber Company plant under lease, will remove to Columbus soon, according to Bucyrus, Ohio, dispatches received in Akron. Columbus offered the Henderson Tire people a bonus to move its plant to the Ohio capital.

### Portage to Build New Unit

John T. Johnson, works manager of the Portage Rubber Company, of Akron, is working out production plans which entail the building of a large new unit to the Portage factory at Barberton, Ohio. Work will be started soon on the new structure to comprise a header building with three wings, each of which will be 200 by 60 feet and several stories in height. The

JOHN T. JOHNSON

new Portage unit will be devoted almost exclusively to the production of cord tires.

Mr. Johnson, a graduate of the mechanical engineering department of Cornell University, was for many years with the B. F. Goodrich Company, at Akron. Starting in the cord tire department he became manager of that department and later was placed in charge of the Goodrich tire experimental department. For a short time he was works manager of the Cord Tire Corporation, at Chester, W. Va., leaving that position to come to the Portage Rubber Company.

Mr. Johnson, who for years has been a keen student of industrial relations, has declared his intention to help make the Portage factory at Barberton a model factory, "where both employers and employes go along on an even keel."

"This will mean," Mr. Johnson pointed out, "maintaining the splendid relationship and understanding that has made Portage workers loyal to the company and the company loyal to the workers. This loyalty is a splendid basis to build on. Neither company nor workers have to lose time settling differences; we use that time in more constructive ways."

Portage workers are now arranging an athletic program for winter and spring, for both women and men employes. Teams representing various departments and the offices have been formed for bowling and basketball contests, now under way and an inter-factory baseball schedule is being planned.

### Well-Known Surgeon with Goodyear

The World War brought forth many startling discoveries in the field of surgery and medicine. Wonderful new methods of treating wounds and combating disease were put into effect. Cures beyond belief were made. Physicians of every age went to schools in the United States and in Europe under the greatest medical minds of the age. As a result sight was restored to the blind by heretofore untried operations, new faces were made of aluminum and marvelous bone grafting was done.

One of the best known of these army doctors, Captain H. R. Conn, who served in France, will give The Goodyear Tire and Rubber Company the benefit of this war experience as assistant head of the company hospital at Akron.

### Firestone Business for Year

*(Special Akron Correspondence.)*

The Firestone Tire and Rubber Company this year has come within striking distance of the select list of American companies doing an annual business in excess of $100,000,000.

According to reports read at the annual Firestone stockholders meeting December 15, sales for the year ending October 31 were $91,078,513.70 against sales for the preceding year of $75,801,506.79, an increase of $15,277,006.91 or 20 per cent.

Profits for the year, after allowances for depreciation and losses on bad accounts, amounted to $9,306,978.19 from which amount $2,597,787.30 was paid during the year as dividends and the balance was placed to surplus subject to corporation income and profits tax accrued. The balance sheet gives the surplus, before taxes, as $35,430,538.80.

President H. S. Firestone announced that the following increased facilities have been planned to more adequately fill the demands for Firestone products. The erection of a Canadian plant at Hamilton, Ontario, which is under construction. This plant will have a capacity of 3500 tires per day, and it is planned to have it in operation by July 1, 1920. A new steel plant at Akron adding twice the capacity of the present plant. A new mechanical building at Akron to take care of the mechanical operations, thereby releasing space in the present factory buildings for additional manufacturing purposes.

The Coventry Land and Improvement Company, a subsidiary concern, is completing 200 additional homes in Firestone Park, Akron, making approximately 1,000 houses erected by them and sold chiefly to Firestone employes. "Even at this time we are unable to fill our orders, and we have every reason to believe the coming year to be one of most unusual growth and prosperity," Mr. Firestone added.

During the meeting the following officers were elected: H. S. Firestone, president; A. C. Miller, vice president; S. G. Carkhuff, secretary, and J. G. Robertson, treasurer. These with J. W. Thomas, L. E. Sisler and Harvey S. Firestone, Jr., form the board of directors.

A book handed Firestone shareholders gives the following outstanding features: Firestone resources exceed $73,000,000. Employes number 17,000. Firestone is using approximately ten per cent of the world's present supply of rubber, making 23,000 tires and 27,000 tubes daily. Added equipment now ordered and to be in operation early in 1920, will raise the output of Plant No. 1 and Plant No. 2 to 36,000 tires and 40,000 tubes daily. Firestone, it is stated, makes rims for over half the manufacturers of passenger cars and trucks.

## First Annual Banquet of Mid-West Rubber Manufacturers' Association

***Held at the Chicago Athletic Club, December 9, 1919***

*The Mid-West Rubber Manufacturers' Association is less than a year old but is already one of the most active and aggressive manufacturers' associations in the country. Its membership is nearly one hundred. The functions of this association are similar to those of the Rubber Association of America and in many matters of interest to the rubber industry the two associations work along the same lines. Officers for the coming year will be elected at the meeting to be held on January 15. Complete details of the dinner were given in our last issue.*

# Items of Interest to the Trade

*Dunlop to Build in Canada—Grow Tire Increases Production—New Purchasing Agent for Mansfield—Biltwell Announces New Tire—New Vice-Presidents for Firestone—Solids May Become Obsolete*

### Dunlop to Build in Canada

Concurrent with the announcement of an unprecedented programme of expansion the world over by the Dunlop Rubber interests, England, comes the news of particular concern to Canadian and American mortorists—the launching of Dunlop America, Ltd., in the United States.

This new Dunlop Company will operate on a huge scale—one calculated to put Dunlop in the front ranks of American rubber companies—just as Dunlop is in the front ranks in every other part of the world where automobile tires are used.

To Canadians particular significance is attached to the great strides of Dunlop Rubber. The Dunlop Tire & Rubber Goods Co., Limited, with headquarters in Toronto and branches in the fourteen leading cities of Canada, have working arrangements, not only with Dunlop in England, but Dunlop in France, Japan, etc. These arrangements constitute interchange of formulae, scientific research, processes and methods. Such arrangements will now likewise be made between Dunlop in Canada and Dunlop in the United States.

As indicating the growth of the Dunlop idea in Canada, plans have been consummated to commence production of tires on a greatly increased scale. An appropriation of $1,500,000 has been set apart for building and equipping another factory in Toronto. The new building, which is now well under way—and being rushed to completion—is 400 feet long, 80 feet wide, with four stories and basement. It faces on three streets—Queen, Booth and Natalie. This latest factory will be devoted especially to the manufacture of Dunlop Cord Tires—"Traction" and "Ribbed."

### New Purchasing Agent for Mansfield

J. Davis Jones, who was for twelve years connected with the Lee Tire Company, has accepted the position of purchasing agent with the Mansfield Tire and Rubber Company, Mansfield, Ohio. Mr. Jones assumed the duties of his new office on December 15.

### Grow Tire Increases Production

The George Grow Tire Company, manufacturers of the Grow cord and fabric tires states that business has increased considerably since production was started in July, 1919. This firm's headquarters are at 323 Columbus avenue, Boston, while the factory is at Canton Junction, Mass., about twenty miles distant.

Production was begun in July at which time fifty tires were manufactured daily. This output has increased until it has reached the 200 mark. At present the firm is making cord and fabric tires, guaranteed for eight and six thousand miles respectively, in both straight side and clincher type. The factory is a one-story building and covers two acres of ground. Samuel Grow and George Grow are president and treasurer of the company which is capitalized at $1,000,000, all of which is common stock.

### Biltwell Announces New Tire

An unusual cord tire guaranteed for 10,000 miles has just been announced by The Biltwell Tire and Rubber Company, of Akron. A few months ago The Biltwell Company attracted notice by announcing a guarantee of 7,000 miles on its fabric tires.

The most striking characteristic of the Biltwell cord tire is its square shouldered

NEW BILTWELL CORD

tread, which conveys an instant impression of extraordinary thickness. The result is a tread which even when the tire is brand new presents a very large area of traction surface. The square shouldered tread also makes possible a deeper non-skid pattern and prolongs the non-skid quality of the tire for several thousand additional miles.

The Biltwell Company, while one of the youngest tire manufacturers in the Akron district, is reported to have made great strides in production during the past few months, and is installing equipment which will double the output within the next three or four months. The latest type of labor saving appliances is used throughout the Biltwell factory and the present factory will ultimately be only one of four similar units.

### New Vice-Presidents at Firestone

Three new offiers of the Firestone Tire and Rubber Co. were receiving congratulations of friends Wednesday, for their promotion to vice presidencies.

The new offices were created for them at the annual stockholders' meeting of the Firestone. In addition, the Board of Directors was increased to 11 in order that they might be given seats.

All are well-known in the rubber world.

In years of service, A. G. Partridge is the oldest member honored. He has been made vice-president in charge of sales. Mr. Partridge started with the Firestone plant when it was in its infancy, and for several years has been general sales manager.

J. W. Thomas also has been with the Firestone for many years as works manager, and since 1911 in charge of production. His official title is now vice-president in charge of manufacturing.

The new vice president in charge of office and purchasing, Thomas Clements, has been with Firestone for two years. He is well known in the auto and vehicle trade.

### Solids May Become Obsolete

That solid tires for motor trucks will be obsolete within three years, street cars will soon be replaced by motor busses and freight cars given close competition by motor trucks on long hauls, were the predictions made by F. A. Seiberling, president of The Goodyear Tire & Rubber Company, and P. W. Litchfield, factory manager, at a banquet given the Detroit and Cleveland sections of the Society of Automotive Engineers in Akron recently.

More than 200 of the foremost designers heard Mr. Seiberling's prophecy that within the lifetime of those present, the United States would be criss-crossed by great highways of solid foundation to withstand any wear and that highways of less than 16 feet width would be unknown. He asserted that the ultimate tire would be the cord—that there would be no fabric or solid tires.

China as the future big market for tires was advocated by the speaker, who declared that the numerous post roads of stone would be excellent foundations for modern highways through that part of the Orient. He quoted statistics to show that 50 per cent. of China's 400,000,000 people are employed in transportation against 10 per cent in the United States, and predicted a Celestial kingdom of motor transportation. Railroads cannot be built because of violating Chinese traditions in crossing burial places with the right of way.

Mr. Litchfield declared that the trolley must go, stating that it has reached a point where it cannot compete with the motor bus. For financial reasons extensions are impossible, so the street car must give way to the gas-driven vehicle that can aid development of suburbs without heavy investment in franchises and equipment.

Increase in traffic has sounded the death knell of the trolley according to Mr. Litchfield. Streets cannot easily be widened to give more track room—continuous traffic movement is imperative. Therefore the whole street service must be utilized by a carrier that can go to the curb to take on or discharge passengers—the trolley must go underground as in London—if it remains in existence.

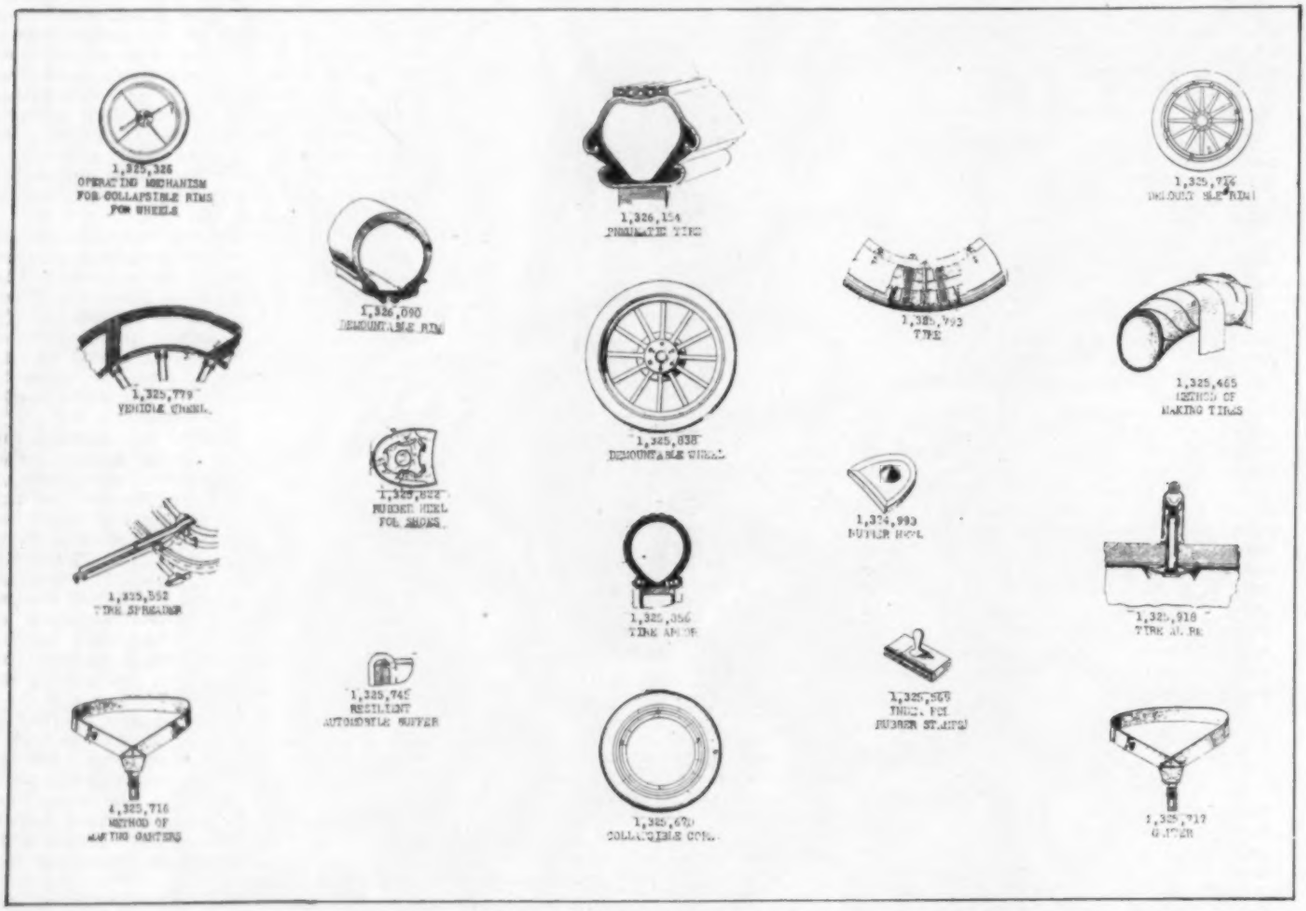
The Goodyear factory manager pointed out the immobility of freight cars and delays necessitated in waiting to make up trains for given destinations. In contradistinction he indicated the mobility of the motor truck and predicted that with permanent highways and cord tire equipment, the motor truck will replace the freight car on long hauls.

Mr. Litchfield asserted that the world war had put Europe 50 years ahead in transportation and with this future for the industry in mind, asked the visiting engineers to design large capacity carriers to replace the street car and prophesied a multiple-wheeled truck would give competition to the railroads on long hauls.

# American Rubber Patents

ISSUED DECEMBER 16, 1919

1,324,944—To Thomas C. Watkins, Ingram, Pa. Air-cooled vehicle-tire.
1,324,993—To Wilber C. Belknap, New York, N. Y., assignor to Robert E. Miller, Inc., New York, N. Y. Rubber heel.
1,325,083—To Albert E. Feldman, Brooklyn, N. Y., assignor to Almeti Accessories Corporation, Brooklyn, N. Y. Carrier for spare tires.
1,325,141—To Herbert George Cave, New York, N. Y. Automobile tire.
1,325,233—To James D. Cooper, Toronto, Canada, assignor one-third to William Parsons, Toronto, Canada. Vehicle-tire.
1,325,258—To Herman W. Melling, Jackson, Mich. Wheel.
1,325,281—To Robert Dressman, Covington, Ky. Tire-tool.
1,325,670—To Frank H. Grove, Earl M. McCurry and George R. Bilger, Columbiana, Ohio, assignors to Banner Machine Co., Columbiana, Ohio. Collapsible core.
1,325,714—To Walter E. Copithorn, Natick, Mass. Demountable rim.
1,325,716—To Robert Gorton, Brookline, Mass. Method of making garters.
1,325,717—To Robert Gorton, Brookline, Mass. Garter.
1,325,745—To George Albert Lyon, Philadelphia, Pa. Resilient automobile buffer.
1,325,779—To Ernest E. Cole, Chicago, Ill. Vehicle wheel.
1,325,793—To Solomon Le Bere, Jr., South Tacoma, Wash. Tire.
1,325,822—To George F. Wells, Elyria, Ohio. Rubber heel for shoes.
1,325,838—To George W. Farrell and Earl R. Newkirk, Grand Rapids, Mich. Demountable wheel.
1,325,856—To John F. Oldham, New York, N. Y., assignor to Oldham Armor Tire Company. Tire-armor.
1,325,918—To Fred Henry Valiton, Deer Lodge, Mont. Tire-alarm.
1,326,090—To Louis H. Periman, New York, N. Y. Demountable rim.
1,326,154—To John A. Johnson, Greenfield, Ind., assignor by direct and mesne assignments to J. W. P. Tire Company, Indianapolis, Ind. Pneumatic tire.




1,325,321—To Phillip T. Hamm, Detroit, Mich., assignor one-third to Frank C. Hossie and Henry Wild, Detroit, Mich. Tire-chain.
1,325,322—To Phillip T. Hamm, Detroit, Mich., assignor of one-third to Frank C. Hossie and Henry Wild, Detroit, Mich. Non-skid chain.
1,325,326—To Eugene A. Jones, Los Angeles, Calif. Operating mechanism for collapsible rims for wheels.
1,325,333—To Edward A. Ryan, Kansas City, Co., assignor of one-third to William W. Farnsworth, Littleton, Colo., and one-third to Edward H. White, Cumberland, Md. Chain placing and removing device.
1,325,364—To James G. Lowe, Shelby, Ala. Automobile tire.
1,325,367—To Clark T. Maddock, Elyria, Ohio, assignor of one-half to J. G. Schulilan, Cleveland, Ohio. Rubber heel.
1,325,389—To John B. Adduci, Boston, Mass. Anti-skidding attachment.
1,325,465—To Charles T. Dickey, Elizabeth, N. J., assignor to John J. Voorhees, Jr., Jersey City, N. J. Method of making tires.

ISSUED DECEMBER 23, 1919

1,325,552—To Donald C. Woodworth, Auburn, Maine. Tire-spreader.
1,325,569—To Noble R. Medearis, Winston-Salem, N. C. Index for rubber stamps.

## Beacon Completes Additions

The Beacon Tire Company, of Beacon, N. Y., has announced the completion of its new factory. The building in question is three stories in height, is of buff-colored brick with green trimmings and is near the line of the New York Central Railroad. Installation of the latest type machinery makes this factory essentially modern in every detail.

Announcement is also made that the company has secured a new general manager in A. E. Gordon who has been identified with the rubber business all his life. The company states that its policy will be to make as good a tire as can possibly be built, using the best materials obtainable and first-class workmanship.

## Bellis Portland Manager for Goodyear

George Bellis, who is now Los Angeles branch manager of the Goodyear Tire and Rubber Company, has been called to a position as district manager of the northwestern district, with headquarters in Portland, Ore.

On July 27, 1913, Mr. Bellis started his career with the Goodyear as mechanical goods salesman, covering Nevada and northern California, and since that time he has been one of the prominent factors in the rapid progress of the Goodyear Tire and Rubber Company.

In December, 1914, he was appointed branch manager at Sacramento, and was there until June, 1917, when he was ordered south to become manager of the Los Angeles branch. Since Mr. Bellis has been located in Los Angeles he has taken an active part in public affairs and has become very well-known and very well liked throughout the city.

## Macdonald with Rochester Tire

Walter N. Macdonald has resigned his position as manager of the Curtis Tire and Rubber Company to accept a similar position with the Rochester Tire and Rubber Company. The plant of the latter firm at Rochester, N. Y., is now being equipped.

# MARKETS

## Manufactured Rubber Goods

NEW YORK, DECEMBER 24, 1919.

Rubber manufacturers are getting production back on a normal basis after having been in a semi-demoralized condition during and immediately after the coal strike. Operations were greatly curtailed for a few days during that period by order of the Fuel Administration, but the early ending of the strike following the consumption-curtailment order saved the industry a greater loss of time and production.

Business is slowing up slightly with the manufacturers, and as is customary at this time of the year, activities pause temporarily while all hands turn to taking an inventory of stock on hand. The demand for rubber goods has not decreased, however, and the market still shows an undercurrent of marked firmness in practically all lines.

### *AUTOMOBILE TIRES*

Production was somewhat decreased during the acute scarcity of coal, but manufacturers are going ahead once more. Definite figures on the total production of tires for the year 1919 have not yet been shown, but it is believed that there will be a general surprise when they are given out, as all records have been shattered in the industry during 1919, despite the adverse influence of short supplies of many of the raw materials. The demand for tires from consuming channels has fallen off, owing to the fact that many cars are going into winter storage, but tire and garage men state that more cars are being kept out this year than usual.

Many of the larger tire manufacturing companies have expanded materially during 1919, and a large percentage of the smaller firms have also increased their capacity. Preparations have been made for a volume of business during 1920 that will exceed even the heavy 1919 output.

### *DRUGGISTS' SUNDRIES*

The market is showing a quiet appearance at the turn of the year, according to manufacturers and dealers. The retail trade has stocked up on sufficient goods to carry it for a while, and is not expected to come into the market for merchandise in quantity until after the stock-taking period has passed. A fair routine consuming demand for goods is reported, although the demand is not as heavy as it was a year ago, when the country was in the grip of an influenza epidemic, and when the army and navy were still taking large supplies. There is some export buying being done at the present time, but unfavorable foreign exchange rates tend to keep this at a minimum.

### *MISCELLANEOUS PRODUCTS*

Tire and rubber companies specializing in rubber and composition soles for shoes report that the demand for their product is being greatly increased by the prevailing high cost of sole leather. Export buyers are showing considerable interest in these processed soles, as the present price of leather is too high for many foreign shoe manufacturers. Companies specializing in rubber heels have reported an active call for their product, and manufacturers of the more popular lines are finding themselves unable to keep pace with the demand. Inquiries are falling off slightly because of winter weather, but producers are making plans to handle a record-breaking business in the spring. A good demand for rubbers, arctics, and rubber boots is reported.

### *MECHANICAL GOODS*

The market is active in a routine way as the year comes to an end, but demand has not yet reached a point where the capacity of manufacturers is seriously taxed. Sales of belting for domestic use are still being hampered by the many closed factories due to strike conditions, while sales for export are reported as being fair. The mines in the West are taking some equipment, but the Mexican disorders and the strained relations between that country and the United States have slowed down operations in the mines. Many ships that were laid up in port during the coal shortage took advantage of the enforced lay-up by refitting with rubber marine specialties, and business in this line was somewhat improved. The railroad situation is still unsettled, and the roads are not taking many mechanical goods, such as couplings, and brake linings.

## Cottons, Yarns, and Fabrics

NEW YORK, DECEMBER 24, 1919.

The market has gained consistently during the past fortnight, and prices on the local cotton exchange have increased from 5 to 96 points on futures, depending upon the option. The long awaited report of the Government was issued on December 11, and placed the probable yield at 11,030,000 bales, which was considerably above the quantities indicated by usually reliable private estimates, which ranged from 10,600,000 to 10,800,000 running bales. The issuance of this report resulted in considerable selling, and for a time the market was weaker, the declines ranging from 87 to 190 points the day the report was issued. These declines were subsequently made up, however.

The shortage of coal has restricted the operations of the mills, and so slackened off trade buying of the short staple, but the demand soon picked up and is now fairly active. There is still a good export movement of the staple, thousands of bales going to France, England, Belgium, and other European countries weekly.

Bulls have failed in their efforts to keep the market at a forty cent level, although that price was attained for a short time. There is a dearth of the finer grades reported, and spinners are being forced to work on off-colored and otherwise defective grades of cotton, as it is impossible to obtain sufficient quantities of the better grades.

At the time of writing, the market is virtually at a standstill, with operators waiting for some news which might influence trading. Prices quoted on futures on the local exchange at the close to-day, with comparisons for December 10, are given below:

NEW YORK FUTURE PRICES

| | Closing bid. Dec. 10. | Closing bid. Dec. 24. | Net change. |
|---|---|---|---|
| December | 38.95 | .... | .... |
| January | 37.03 | 37.55 | +52 |
| February | 35.60 | 36.50 | +90 |
| March | 34.65 | 35.66 | +101 |
| April | 33.45 | 33.85 | +40 |
| May | 32.58 | 33.35 | +77 |
| June | 31.65 | 32.00 | +35 |
| July | 31.10 | 31.48 | +38 |
| August | 29.85 | 29.90 | +5 |
| September | 29.35 | 29.40 | +5 |
| October | 28.67 | 28.75 | +8 |

### *SEA ISLAND COTTON*

Conditions in this market continue unchanged. Spinners are having difficulty in obtaining sufficient supplies of raw cotton, and are turning their attention to other grades. High prices are being asked on remaining supplies of cotton, as high as 80 cents per pound has been paid for some particularly desirable grades. Growers are now giving serious attention to the plan of replanting the entire Sea Island belt with Meade cotton.

### *EGYPTIAN COTTON*

Routine arrivals of Egyptian cotton are reported, but difficulty is being experienced in getting as much as is wanted, due to heavy European buying in the Egyptian markets. Reports from Alexandria state that the new crop is progressing favorably, and the yield for the current season will be considerably above that of a year ago.

### *DOMESTIC EGYPTIAN COTTON*

Reports from the Southwest state that growers are anticipating a good crop of long staple cotton. The market is a strong one, as tire makers have already contracted for a large part of the output. Many growers are being attracted to Arizona by reports of the big prices being paid for the new long fibre cotton, and it is believed that production will be materially increased next season.

### *TIRE FABRICS*

Producers of tire fabrics are behind in deliveries on their orders, and the market is said to be in a strong position. New business is generally quiet at present, but manufacturers have enough orders on hand to keep them going for some time

to come. The curtailment of operations in the tire producing sections of the West, due to the coal shortage, cut down demand for a time, and the market is quiet now as manufacturers are busily engaged in taking stocks. Preparations are being made to take care of a record-breaking business in 1920.

### *HOSE AND BELTING FABRICS*

A steady routine inquiry for belting materials is reported, but the market is showing the usual dullness characteristic of the end of the year. Consumers are busy taking inventory of the supplies on hand at the end of the year. Prices are exhibiting considerable firmness.

### *DRILLS, SHEETINGS AND OSNABURGS*

The continued rise in the prices on raw cotton is being reflected in the market for cotton fabrics, and a stronger undercurrent is in evidence in the market for drills and sheetings, with the basis of prices a trifle higher. There is a strong domestic consuming inquiry reaching sellers, and in addition, there is a good volume of export buying.

### *BURLAPS*

The market is in a generally quiet position, with little interest being shown in offerings. The trade is looking for a quiet market until after the turn of the year. The market is in a firm position, strength being more pronounced in the heavier grades, which are in considerable demand.

**TIRE FABRICS**

| | | |
|---|---|---|
| 17¼-ounce Sea Island, combed, sq. yd. | 1.40 | @1.55 |
| 17¼-ounce Egyptian, combed | 1.20 | @1.30 |
| 17½-ounce Egyptian, carded | Nominal | |
| 17¼-ounce Peelers, carded | .85 | @ .90 |
| 17¼-ounce Peelers, combed | 1.05 | @1.15 |

**DUCKS**

| | | |
|---|---|---|
| Single Filling (pound basis), lb. | .65 @ | .... |
| Double Filling (pound basis) | .65 @ | .... |

**DRILLS**

| | | | |
|---|---|---|---|
| 37-inch 2.35-yard, yd. | .33 @ | .... |
| 37-inch 2.75-yard | .30 @ | .... |
| 37-inch 3.00-yard | .28½ @ | .... |
| 37-inch 3.25-yard | .27 @ | .... |
| 37-inch 3.50-yard | .26 @ | .... |
| 37-inch 3.95-yard | .22½ @ | .23 |
| 37-inch 2.00-yard Southern | Nominal | |
| 37-inch 2.00-yard Northern | Nominal | |
| 40-inch 2.40-yard Southern | Nominal | |
| 40-inch 2.40-yard Northern | Nominal | |
| 52-inch 1.90-yard Southern | Nominal | |
| 52-inch 1.90-yard Northern | Nominal | |

**SHEETINGS**

| | | | |
|---|---|---|---|
| 40-inch 2.35-yard, yd. | .... | @ | ..... |
| 40-inch 2.50-yard | .32 | @ | .32½ |
| 40-inch 2.85-yard | .28½ | @ | .29 |
| 40-inch 3.00-yard | .26½ | @ | .27 |
| 40-inch 3.25-yard | .25½ | @ | .... |
| 40-inch 3.75-yard | .23½ | @ | .24 |
| 40-inch 3.60-yard | .26½ | @ | .28 |
| 40-inch 4.25-yard | .21 | @ | .21½ |

***Note.*—In view of the unsettled conditions prevailing in the market at the present time, the prices quoted above are more or less nominal, and are not guaranteed.**

**BURLAPS**
**(Carload lots)**

| | | Cents Per Yard | |
|---|---|---|---|
| 7 -ounce 40-inch | Nominal | |
| 7½-ounce 40-inch | Nominal | |
| 7½-ounce 45-inch | Nominal | |
| 8 -ounce 36-inch | .... | @ .... |
| 8 -ounce 40-inch | 13.75 | @ 14.00 |
| 8½-ounce 40-inch | .... | @ .... |
| 10 -ounce 36-inch | .... | @ .... |
| 10 -ounce 40-inch | 17.35 | @ 17.50 |
| 10 -ounce 45-inch | Nominal | |
| 10½-ounce 40-inch | 17.75 | @ 18.00 |

# Chemicals and Compounding Materials

NEW YORK, DECEMBER 24, 1919.

An active market for chemicals and compounding materials has been noted since our last report, and new strength has characterized the market on several lines. Dealers report a steady demand reaching them from tire and rubber manufacturers, although this business was interrupted somewhat during the coal shortage. Supplies of many raw materials are running short of requirements, and producers are working at top speed in order to increase their output to keep pace with the demand.

### *EXPORTS*

The passage of the Edge bill by Congress is believed to foreshadow an almost immediate resumption in export trading on a large scale, as the new bill provides for the granting of credits to foreign buyers, even to the extent of loaning them the funds with which to purchase American products. While there is a fair demand for American chemicals and compounding materials abroad, it is believed that much business has been held up by the lack of adequate funds on the part of foreign buyers.

The progress of the Longworth bill in Congress is being watched with keen interest by American chemical manufacturers. The bill provides for licensing of imports of chemicals, dyestuffs, etc., and imposes heavy import duties on these commodities. Much opposition to the bill has developed among consumers, but the larger manufacturers state that unless the bill is passed in a strong enough condition to protect them from German competition they will turn their activities to other lines.

### *BENZOL STRONG*

Continued strength in the market for pure white benzol is reported, the market being strongly held at 34@35 cents per gallon for both spot and future shipment goods. Supplies are reported to be short, but there is a fair export demand coming in, which keeps producers working at capacity to take care of their business.

### *LITHARGE FIRM*

There is a continued steady demand for litharge reported, and the market is firmly held at 10½ and 11 cents per pound. A good demand for litharge for shipment during the early months of 1920 is reported to be reaching producers, and the outlook for a firm market next year is promising one.

### *LITHOPONE UNCHANGED*

No change in the prevailing prices on lithopone have yet been made, despite soaring costs of production, and the market is expected to hold on the established basis of 7 cents per pound in bags and 7 and 7¼ cents per pound in barrels until the first of the year. Whether or not the price will be advanced after that time is doubtful, as no indications of intent to take such action have been noticed.

### *WHITING IS ACTIVE*

An active inquiry for whiting is noted in the local market, and prices are firmly maintained on the basis of $1.15 to $1.20 per cwt. for commercial in carload lots, while English cliffstone is held at $1.75 to $2.50 and American Paris white at $1.50 and $1.75. Increased imports of cliffstone from Great Britain are reported, and the market is better supplied than it has been for several weeks.

### *ORANGE MINERAL FIRM*

A fair demand for orange mineral is reported, and the market for American holds firm on the basis of 13¼ and 14¼ cents per pound, while prices on English, French and German are nominally unchanged. No serious competition from Germany is noted, and none is anticipated for some time, as the Allied Powers will take the bulk of Germany's production of chemicals and compounding materials for war indemnities.

### *BARYTES WANTED*

Producers' prices on barytes are strongly held at $21 per ton for Southern, and $21.50 for Western, both prices f.o.n. mills. Domestic pure white floated in bags is held at 30 and 31 cents per pound, with off color available at 21 and 24 cents. Producers, in many instances, are behind in their deliveries of barytes, and have been further delayed by the coal shortage, and poor transportation which the railways have been affording for some time past. Preparations are being made for an active season during 1920. American producers are not standing in fear of any immediate German competition with the inevitable underselling which is a part of the German system of capturing markets.

### *GLUE TRADE ROUTINE*

Glue manufacturers, as a rule, have enough business to keep them satisfied, and some of them have booked their production for some time ahead. The market is showing a firm undertone, and prices continue steady and unchanged as quoted below.

### *DRY COLORS STRONG*

An advancing tendency in the dry colors market is reported, and prices as a result are somewhat unsettled. Blacks are showing a stronger tone, with the market quoted at the following ranges; powdered bone 5½ and 12 cents per pound; carbon gas 12 and 25 cents; drop 5½ and 15 cents; lampblack 15 and 45 cents; and mineral blacks $35 and $45 a ton in carload lots. Blues are strongly held, while the same condition holds true with browns, greens, and the entire list. Advanced prices on many lines are predicted by those in the trade.

### *OILS STEADY*

A general steady tone pervades the market for oils. Aniline oil is held at 34 and 36 cents, with offerings light. Linseed holds steady at $1.87 per gallon for raw in carloads, and $1.90 per gallon in five barrel lots. The market for oil in tank cars holds at $1.82 per gallon. Palm oil on spot holds at 16¾ for Lagos, and 16½ for Niger, with crude palm kernel offering at 20½ cents per pound. Crude corn oil in barrels is steady at 19.56 per pound, and one cent under this figure in tank cars, while refined in barrels is held at 23 and 24.56 in car lots. Blown rapeseed oil is steady at $1.65 per gallon, with refined at $1.52 and $1.55.

***Current Prices for Chemicals, Fillers, Colors, etc.***

| | | | |
|---|---|---|---|
| Acetone, carlots, lb. | .13½ | @ | .14 |
| smaller lots, lb. | .15 | @ | .16 |
| Accelerator, in drums, lb. | .85 | @ | 1.00 |
| Acids, Acetic, 56%, cwt. | 6.00 | @ | 6.50 |
| Carbolic, C. P., lb. | .12 | @ | .20 |
| Muriatic, 20 deg., cwt. | 1.75 | @ | 2.00 |
| Muriatic, 22 deg., cwt. | 2.50 | @ | 2.75 |
| Nitric, 42 deg., cwt. | 7.50 | @ | 8.00 |
| Nitric, 40 deg., cwt. | 7.00 | @ | 7.50 |
| Sulphuric, 60 deg., ton | 19.00 | @ | 23.00 |
| Tartaric, crystals, lb. | .74 | @ | — |
| Aluminum Flake, ton | 29.00 | @ | 31.00 |
| Aniline oil, bulk basis, Contract | — | @ | — |
| Imported | Nominal | | |
| Domestic | .32 | @ | .33 |
| Antimony, metal spot, lb. | .9½ | @ | .9¾ |
| Oxide, lb. | .12 | @ | — |
| Sulphuret, red, lb. | .25 | @ | .30 |
| Sulphuret, golden, lb. | .30 | @ | .35 |
| Sulphuret, crimson, lb. | .45 | @ | .50 |
| Needle, powdered, lb. | .10 | @ | .11 |
| Asbestos, ton | 35.00 | @ | 45.00 |
| Asphaltum, Egyptian, lb. | .18 | @ | .22 |
| Domestic, ton | 22.00 | @ | 30.00 |

| | | | |
|---|---|---|---|
| Barium sulphate, technical | lb. | .04½ @ | .05 |
| Sulphide | lb. | .07¼ @ | .07½ |
| Barytes, prime white imported | ton | Nominal | |
| white, domestic | lb. | .30 @ | .31 |
| off color, domestic | lb. | .21 @ | .24 |
| Southern, f.o.b. mills | | 21.00 @ | — |
| Western, f.o.b. mills | | 21.50 @ | — |
| Benzol, pure, bulk | gal. | .34 @ | .36 |
| Beta-naphtol, sublimed | lb. | .65 @ | .70 |
| unsublimed | lb. | .50 @ | .62 |
| Blacks, Drop | lb. | .05½ @ | .15 |
| Ivory | lb. | .16 @ | .30 |
| Carbon, gas, cases | lb. | .12 @ | .25 |
| Lampblack R. M. | lb. | .15 @ | .45 |
| Mineral blacks | ton | 35.00 @ | 45.00 |
| Blues, Prussian | lb. | .80 @ | .85 |
| Soluble | lb. | .85 @ | .90 |
| Ultramarine | lb. | .35 @ | .50 |
| Browns, Umber, Turkey, burnt, powdered | lb. | .05 @ | .06½ |
| American, burnt | lb. | .03½ @ | .04 |
| Cadmium sulphide, yellow | lb. | 1.75 @ | 1.80 |
| Carbon, disulphide, bulk | lb. | .06½ @ | .07 |
| tetrachloride, drums | lb. | .11 @ | .12 |
| Caustic Soda, 76% | cwt. | 4.50 @ | 4.60 |
| Chalk, precipitated, extra light | lb. | .05½ @ | .06½ |
| light | lb. | .05 @ | .06 |
| heavy | lb. | .05½ @ | .06 |
| China clay, domestic | ton | 8.50 @ | 20.00 |
| imported | ton | 18.00 @ | 23.50 |
| Fossil flour | lb. | .03¾ @ | .05 |
| Gilsonite | ton | 47.50 @ | 60.00 |
| Glue, extra white | lb. | .35 @ | .40 |
| medium | lb. | .30 @ | .40 |
| low grade | | .20 @ | .25 |
| foot stock | | .13 @ | .18 |
| brown foots | | .12 @ | .16 |
| common bone | | .11 @ | .15 |
| Glycerine, C. P. (drums) | lb. | .24 @ | — |
| cans | | .26 @ | — |
| second hands | | — @ | — |
| Graphite, flake (bbl.) | lb. | .14 @ | .25 |
| powdered (bbl.) | lb. | .05 @ | .10 |
| Green, chrome, R. M. | lb. | .37 @ | .60 |
| Ground glass (fine) | lb. | .03½ @ | .04 |
| Hexamethylene | lb. | 1.30 @ | 1.35 |
| Infusorial earth, powd'd. | lb. | .02 @ | .035 |
| bolted | lb. | .035 @ | — |
| Iron oxide, red, reduced grades | lb. | .07 @ | .08 |
| red, pure, bright | lb. | .15 @ | .20 |
| Lead, red, dry (casks) | lb. | .10¾ @ | .11 |
| sublimed | lb. | .09¼ @ | .09¾ |
| white, basic carb | lb. | .09 @ | .09½ |
| white, basic sulp | lb. | .08¼ @ | .08½ |
| Lime flour | lb. | .01¾ @ | .02 |
| Litharge (casks) | lb. | .13¼ @ | .14¼ |
| English | lb. | *.12 @ | .13 |
| Lithopone, domestic, bbls. | lb. | .07 @ | .07½ |
| in bags | lb. | .07 @ | — |
| Magnesia, carbonate | lb. | .21 @ | .22 |
| calcined light | lb. | .65 @ | .75 |
| Magnesite, calcined, pwd. | ton | 50.00 @ | 65.00 |
| Mica, powdered | lb. | .04¾ @ | .05 |
| Naphtha, motor gasoline, (steel bbls.) | gal. | .23½ @ | — |
| 68 @ 70 degrees (steel bbls.) | gal. | .30½ @ | — |
| 70 @ 72 degrees (steel bbls.) | gal. | .31½ @ | — |
| 73 @ 76 degrees (steel bbls.) | gal. | .33½ @ | — |
| machine (wood bbls.) | gal. | .41½ @ | — |
| Oil corn, crude factory | lb. | 19.50 @ | — |
| corn, refined (bbls.) | lb. | 23.00 @ | 24.50 |
| linseed (bbls.) | | 1.87 @ | — |
| in carloads, spot | | 1.87 @ | — |
| tank cars | | 1.82 @ | — |
| Oil palm, Lagos | lb. | 16¼ @ | — |
| Niger | | .16½ @ | — |
| pine, yellow | gal. | .87 @ | — |
| rapeseed, refined | gal. | 1.52 @ | 1.53 |
| rapeseed, blown | gal. | 1.65 @ | — |
| rosin, first rectified. | gal. | .91 @ | — |
| second run | | .94 @ | — |
| tar (commercial) | gal. | .36 @ | .38 |
| Orange mineral, American. | lb. | .13¼ @ | .14¼ |
| imported | lb. | — @ | — |
| Paraphenylenediamine | lb | 2.40 @ | 3.00 |
| Petrolatum, bbls., amber. | lb. | .06 @ | .07 |
| pale yellow | lb. | .06 @ | .07 |
| Pine tar kiln | bbl. | 14.50 @ | — |
| Pitch | bbl. | 8.50 @ | — |
| Plaster of paris | bbl. | 2.00 @ | 3.00 |
| Red Tuscan | lb. | .22 @ | .30 |
| red (American) | lb. | .14 @ | .16 |
| Indian (English) | lb. | .14 @ | .16 |
| Standard | lb. | .12 @ | .16 |
| Rosin (common to good)—280 lbs. | bbl. | 17.00 @ | — |
| Rotten stone, powdered. | lb. | .02½ @ | .04½ |
| Rubber, substitute, black. | lb. | .13 @ | .17 |
| white | lb. | .15 @ | .24 |
| brown | lb. | .20 @ | .25 |
| Shellac, fine orange | lb. | — @ | — |
| T. N. | lb | 1.30 @ | — |
| Bleached, ordinary. | lb. | 1.25 @ | 1.30 |
| Bleached, bonedry. | lb. | 1.35 @ | 1.40 |
| Silex (silica) | ton | 22.00 @ | 40.00 |
| Soapstone, powdered | ton | 12.00 @ | 17.50 |
| Starch, corn, powd. | cwt. | 5.12 @ | — |
| pearl | | 4.97 @ | — |
| Jap, potato | lb. | .07½ @ | .08 |
| Sulphur, crude | ton. | — @ | — |
| 100 pounds | | — @ | — |
| roll | | 2.95 @ | 3.40 |
| commercial superfine | | 2.00 @ | 2.25 |
| Talc, American | ton | 20.00 @ | 40.00 |
| French | ton | — @ | — |
| Toluol, pure, in drums. | gal. | .34 @ | .35 |
| commercial | | — @ | — |
| Tripolite earth | lb. | .01½ @ | — |
| Turpentine, pure gum—spirit | gal. | 1.57 @ | — |
| wood | gal. | 1.62 @ | — |
| Venice, artificial | gal. | .15 @ | .16 |
| true | | 4.50 @ | — |
| Vermilion, English | lb. | 1.40 @ | — |
| American | | .25 @ | .30 |
| Wax, beeswax, crude yel. | lb. | .44 @ | .45 |
| refined | | .47 @ | .48 |
| Bayberry | | .50 @ | .52 |
| ceresin, white | lb. | .16 @ | .17 |
| yellow | | .14 @ | .15 |
| Zinc Oxide, American process, dry—Selected | | .09½ @ | .09¾ |
| XX | | .09 @ | .09¼ |
| Zinc Oxide, leaded, per lb., Amer. process, dry—Selected | | .09½ @ | .09¾ |
| Superior | | .08 @ | .08¼ |
| Lehigh | | .08¾ @ | .09 |
| Zinc Oxide, French process—White Seal | | .11½ @ | .11¾ |
| Green Seal | | .10½ @ | .10¾ |
| Red Seal | | .09½ @ | .09¾ |

* Car lots. † Less than car lots.

# Scrap Rubber

NEW YORK, DECEMBER 24, 1919.

Activity in scrap rubber has been confined to the filling of routine requirements of the reclaimers, and there has been no appreciable change in conditions during the past fortnight. The easy position of the market for crude is being reflected to some extent in the market for scrap. Users of the scrap rubber are busy clearing up their year-end business and taking stock, and are not expected to come into the market for any sizable quantities of scrap until the beginning of the new year.

| | Cents per pound. | | |
|---|---|---|---|
| Boots and shoes | 8.00 | @ | 8.25 |
| Arctics, trimmed | 6.00 | @ | 6.25 |
| Arctics, untrimmed | 4.50 | @ | 5.00 |
| Tires—Automobile | 3.75 | @ | 4.00 |
| Bicycles, pneumatic | 2.50 | @ | 3.00 |
| Mixed hose | 1.75 | @ | .... |
| Air brake | 2.75 | @ | 3.00 |
| Inner tubes, No. 1 | 19.50 | @ | 20.00 |
| Inner tubes, No. 2 | 10.00 | @ | 11.00 |
| Red tubes | 9.50 | @ | 10.00 |

# Crude Rubber

NEW YORK, DECEMBER 24, 1919.

The market is showing a generally quiet tone, with prices nominally held on the spot. The coal shortage in the West served to cut down the consumption of crude to an appreciable extent, and the usual year-end dullness has now set in. Importers do not look for much activity until after the first of the year, when the manufacturers will have completed their inventories, and will once again come into the market for supplies. A record-breaking year is expected in 1920 unless some unforeseen calamity should strike the trade, manufacturers are constantly increasing production of practically all rubber articles, and importers are making preparations for a big volume of business during the coming year.

Price changes since the last report have been mostly downward, and weakness has been noted in practically all lines. As buying has been only in very small quantities the prices quoted are nominal in all respects, and a quickening of the demand would doubtless be almost immediately reflected in higher prices on the crude rubber.

| | Cents per pound. | | |
|---|---|---|---|
| Para—Up-river fine | 47½ | @ | 48 |
| Up-river medium | 51 | @ | 51½ |
| Up-river coarse | 35 | @ | .... |
| Caucho ball | 35 | @ | 35½ |
| Islands fine | 48 | @ | .... |
| Islands coarse | 21½ | @ | .... |
| Cameta | 23 | @ | .... |
| Madeira fine | 62 | @ | .... |
| Knapsack | 73 | @ | .... |
| Ceylons—Smoked sheets, ribbed | 52½ | @ | 53 |
| Smoked sheets, plain | 51 | @ | 51½ |
| First latex pale crepe | 52½ | @ | 53 |
| Amber Crepe | Nominal | | |
| Clean brown crepe | 54 | @ | .... |
| Rio Nunez string | 55 | @ | .... |
| Palembang | 14 | @ | .... |
| African | 33 | @ | .... |
| Prime Surinam sheets | 1.02 | @ | .... |
| Centrals—Corinto prime | 34 | @ | .... |
| Esmeralda, prime | 34 | @ | .... |
| *Balata sheets | .. | @ | .... |
| Guayule, wet | 27 | @ | .... |
| Balata, block, Panama | 57 | @ | .... |

* Nominal.

### Akron Stock Quotations

*(Special Akron Correspondence)*

Goodyear, American Rubber and Tire and Portage common were leaders on the Akron rubber stock exchange during the early part of December, although several other issues showed decided strength.

Since the change in executives at the Portage the stock has undergone a slump, but is now staging a come-back. Preliminary reports for the fiscal year ended November 30 show the company is holding its own and the increased buying of stock indicates that investors have confidence in the new management.

Following are quotations of December 15:

| | Bid. | Asked. |
|---|---|---|
| Amer. R. T., com | 85 | .. |
| do, pfd. | 107 | .. |
| Amazon Rubber | .. | 95 |
| Firestone, com. | 194 | 197 |
| do, 6 per cent pfd. | 98 | 99 |
| do, 7 per cent pfd. | 99 | 100 |
| General, com. | 500 | .. |
| do, pfd. | 100 | 101½ |
| Goodrich, com. | 78 | 80 |
| do, pfd. | 104 | 104½ |
| Goodyear, com. | 417 | 422 |
| do, new pfd. | 100½ | 101½ |
| India Rubber | 225 | .. |
| Kelly Springfield | 132 | 134 |
| Mason, com. | 25 | .. |
| do, pfd. | .. | 85 |
| Marathon, com. | .. | 60 |
| Miller, com. | 200 | 206 |
| do, 1st pfd. | 107½ | 112 |
| do, 2nd pfd. | 103 | 104 |
| Mohawk, com. | 330 | .. |
| do, pfd. | 100 | 110 |
| Portage, com. | 136 | 139 |
| do, pfd. | 92 | 93 |
| Republic, com. | 4½ | 5½ |
| do, 1st pfd. | .. | 95 |
| do, 2nd pfd. | .. | 85 |
| Rubber Products | 133 | 135 |
| Star Rubber, com. | 350 | 450 |
| do, pfdi. | 98 | 100 |
| Swinehart, com. | 95 | 99 |
| do, pfd. | 92 | .. |
| Phoenix, com. | 22 | 25 |
| do, pfd. | .. | 90 |
| Standard Tire | 170 | .. |

### International India Rubber Enlarges

The International India Rubber Corporation of South Bend, Ind., has broken ground for a factory addition for the installation of a line of three new mixing mills, one large size calender and three new vulcanizers. This will increase the factory capacity to 800 tires and tubes daily.

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*F. R. Henderson & Co.*

*IMPORTERS*

*Crude Rubber*

NEW YORK CITY AKRON, OHIO